

Application No. 10/698,135
Amendment dated December 6, 2005
Reply to Office Action of September 8, 2005

Docket No.: 209593-81548

REMARKS

New claim 43 has been added, which is fully supported by the application as filed. Upon entry of this amendment, claims 1-32 and 34-43 will be pending. Favorable reconsideration is respectfully requested in light of the following Remarks.

I. Claim Rejections Under 35 U.S.C. §103

Claims 1-4, 8-20, 22-33 and 34-42 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Griffith (U.S. Patent No. 2,594,641), claims 1-3, 5-11, 13-17, 26, 31, 32, 34-38 and 42 were rejected as being unpatentable over Klose (U.S. Patent No. 2,973,008) and claim 21 was rejected as being unpatentable over Griffith in view of Medina (U.S. Patent No. 3,800,824). For at least the following reasons, Applicant respectfully traverses the rejection.

The Office Action admits that Griffith and Klose do not disclose that the valve head is a modified ellipsoid shape; however, the Action states that it would have been obvious to modify the valve head to be modified ellipsoid shaped. Under the circumstances, the claimed modified ellipsoid shaped valve head cannot be dismissed as a matter of design since the modified ellipsoid shaped valve head is described in the specification as solving a stated problem.¹ More particularly, the "Background of the Invention" section of Applicant's specification states that:

[0003] A common performance characteristic associated with check valves is the degree of pressure drop. Users typically want to have the lowest pressure drop that is reasonably attainable. However, the obtainable pressure drop is inversely proportional to the reduction of the flow path cross sectional area through the valve housing. Factors that contribute to the pressure drop of hydraulic or pneumatic fluid conveyance devices include: a) fluid drag along the walls and surfaces; b) changes in direction of flow; c) the division of flow paths (such as the division of a single flow into several flow paths and corresponding merging of such flow paths back into a single path); d) acceleration and deceleration of the flow stream; and e) the formation and presence of eddy currents or non-laminar flow.

¹ Compare *In re Kuhle*, 526 F.2d 553, 555, 188 USPQ 7, 9 (CCPA 1975), where the use of a particular connection in lieu of those used in the prior art was held to be an obvious matter of design choice within the skill in the art only where the particular connection solves no stated problem.

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[0004] It is generally desirable to provide a valve with less (or reduced) pressure drop and lower assembly cost, while providing a reduced envelope and weight as compared to traditional valves. Two-piece valve housings with a large flow path may offer a corresponding low pressure drop, but often at the sacrifice of additional weight and size, assembly requirements, and cost. A balancing of factors and features is commonly necessitated. The present invention is developed in light of these and other considerations.

Applicant's "Detailed Description of the Invention" further states that:

[0014] In an embodiment of the invention, the valve head 26 includes a shaped portion having a modified ellipsoid form (viewed from a side cross sectional view such as shown in Figure 1). *The shaped portion of the cavity can be configured so that the cross sectional flow area past the valve head and through the valve is more consistent. As such, the shaped portion of the valve head 26 may have a surface that is a combination of several tangent radii. For instance, the surface may be comprised of four, five, or more radii with tangents (viewed in cross section) that work together to form a continuous surface. The specific radii associated with the shaped portion can be run through physical and analytic analysis and testing to determine specific configurations that are more conducive to improved valve operation, for example, a more consistent flow area through the assembly, reduced eddies, and more consistent cross sectional flow.* As generally illustrated, the valve head 26 includes an exterior surface segment or portion 30 that substantially matches up with a similarly shaped portion of the cavity 24 of the body 12 at least at one point (or segment) of contact. Moreover, if desired, or if necessary for a given application, the external surface of the valve head 26 and corresponding and contacting surface portion of the cavity 24 can be tightly toleranced to prevent leakage. (Emphasis Added).

As described above in the specification, a valve head having a modified ellipsoid shape (such as that defined by a plurality of radii with tangents that work together to form a continuous surface) is more conducive to, among other things, improved valve operation, a more consistent flow area through the assembly, reduced eddies, and more consistent cross sectional flow. Therefore, the claimed valve head shape cannot be dismissed as a matter of design choice. For at least these reasons, a prima facie case of obviousness under § 103(a) has not been established and the rejection should be withdrawn.

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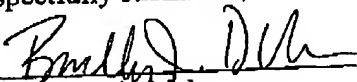
CONCLUSION

In view of the above, Applicant believes the pending application is in condition for allowance.

Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 50-3145, under Order No. 209593-81548 from which the undersigned is authorized to draw.

Dated: 12/6/05

Respectfully submitted,

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